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Food Hygiene Rating, Management Commitment and EHO Perspectives of Inspection Criteria Associated with Food Safety Culture

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- Food safety culture in the food sector.
- Food safety compliance in food service and manufacturing.
- Consumer food safety behaviour and cognitive influences.
- Targeted food safety intervention development, implementation and evaluation.
- Novel technologies – AI, eye trackers, stimulus & emotional response testing, PEL
- Knowledge transfer and supply chain.
- Waste / production efficiency in food manufacturing.
- Pathogen specific research – Listeria.

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Presentation Plan

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- Background literature - incidence of foodborne disease, SME food service sector, food safety compliance and food safety culture.
- Research study overview and approaches.
- Research findings: Food hygiene rating, management commitment and EHO perceptions of inspection criteria associated with FSC.
- Questions and contact details.

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Incidents of Foodborne Disease

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- The World Health Organization (WHO) estimates that annually there are 600 million illness, and 420,000 deaths attributed to foodborne disease [(1)].
- UK data suggests 2.4 million cases of foodborne disease, 16,400 hospital admissions and 180 deaths [(2)].
- Food-service SMEs are common settings for food poisoning outbreaks in the UK and internationally [(3-6)].
- The European Food Safety Authority (EFSA) reports “strong evidence” that 46% of foodborne outbreaks are attributed to the food service sector, including restaurants, cafes, pubs, street vendors, take away, and institutional caterers [(7)].

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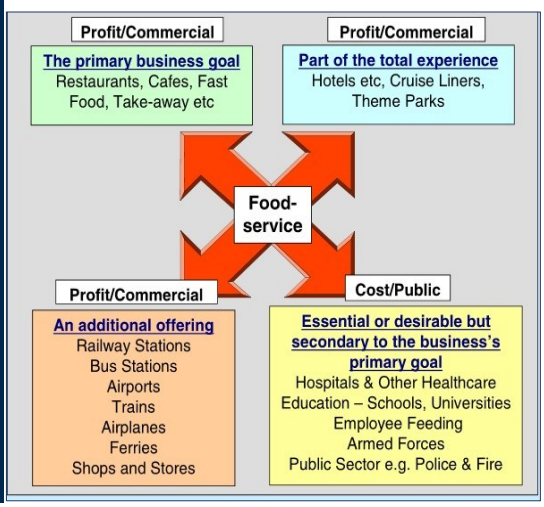
UK Food service sector

Figure 1. The food service industry
(Source: Edwards, 2013)



- Hospitality sector (including restaurants and caterers) accounts for 73% of food establishments across England, Wales and Northern Ireland [8].
- SMEs (small and medium-sized enterprises) account for >99%, and micro-business make up most of the sector [9].
- Food safety compliance in food-service SMEs is essential for minimising the risk of foodborne disease [5] .
- Recent data indicates 47% of food establishments subject to inspections, audit, verification, and surveillance were subject to at least one type of enforcement action [8].

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Compliance and Food Safety Culture

- Research findings suggests SMEs are reactive rather than proactive, they rely on the Environmental Health Officer (EHO) to identify non –compliance, give direction on action to take and provide information on legislation [10]
- Influences on compliance include; business size, organisational structure, physical design, resource availability, inspection frequency and factors associated with food safety culture (FSC) [10-12].
- Food safety culture (FSC) can be considered a contributory risk factor in food poisoning outbreaks [12].
- The behaviours and factors in the intervening gap between the intended and actual practice [14].

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Food Safety Culture Definitions

- The aggregation of the prevailing, relatively constant, learned, shared attitudes, values and beliefs contributing to the hygiene behaviours used within a particular food handling environment [13].
- FSC is defined as a long-term construct existing at the organisational level relating to the deeply rooted beliefs, behaviours and assumptions that are learned and shared by all employees, which impact the food safety performance of the organisation [15].

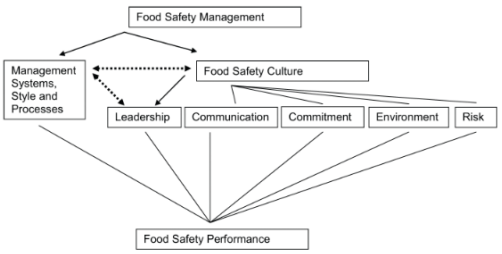

Figure 1. Factors influencing food safety performance
(Source: Griffith et al., 2010)

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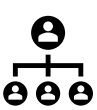
Compliance, Management Commitment and FSC

- Failure to meet regulatory standards are assumed to increase the risk of FBD [16].
- Studies in America suggest FBD outbreaks are associated with history of regulatory failure [17].
- Nonconformance data may provide valuable Insight on the management of food safety and associated behaviours and information on potential factors influencing compliance and FSC.
- Management commitment has been associated with food safety performance, fewer violations, and increased effectiveness of training and the commitment of food handlers to engage in food safety practices [18].
- Management behaviours signal the sorts of behaviours that are valued or likely to be supported and rewarded [19].
- Employees learn about the consequences of safe or unsafe behaviour by listening and watching managers' actions about safety [20].
- The creation, maintenance, and success of a positive FSC can be determined by the level of personal commitment of the food business operator (FBO) / senior management [19].



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Research Overview

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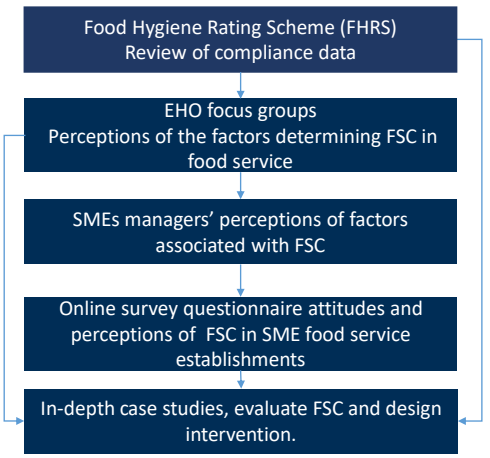
Study aims

- To understand factors that influence compliance and FSC in SME food service establishments.
- Recommend targeted approaches to improve FSC in food service SMEs, to improve food safety compliance and reduce the risk of foodborne disease.



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Research Study: Stages 1 - 4

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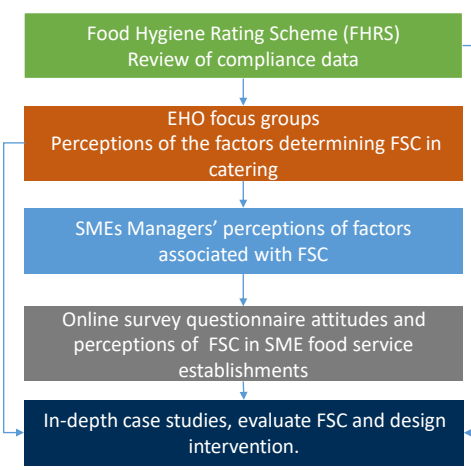
- Archive Retrieval [22-24], FHR Inspection reports (2013-2016) (n=299)
- Focus groups with Environmental Health Officers (EHOs) from Local Authorities (n=2 groups; n=11 EHOs).
- In-depth, semi-structured interviews with SME food service managers (n=10)
- Quantitative food safety culture online questionnaire with SME food service managers(n=45)
- Ethical approval was obtained from the Cardiff Metropolitan School of Sport and Health Sciences Ethics Committee (Ref: 8172)



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FHRS Non-Compliances: Hygiene

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FHRS Common Non-Compliances: Hygiene (n=299 FHRS reports).

Contravention	Non-compliances	Comments
Cross-contamination	24%	Lack of segregation raw and cooked, dirty hand contact surfaces
Stock rotation	22%	Labelling issues, out of date stock
Poor temperature control	16%	Hot holding - high risk > 63°C
Cleaning	15%	Food and hand equipment Wrong chemical
Personal hygiene	14%	Handwashing facilities

97% managers are confident that all of the food safety and hygiene procedures that are implemented in their business will prevent food-borne illness.

97% managers believed consumers are unlikely to get food poisoning from their establishment

85% agreed enough time is allocated for stock rotation checks in their business.

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FHRS Non-Compliances: Structure

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FHRS Common Non compliances: Structure (n=299 FHRS reports).

Contravention	Non-compliances	Comments
Structural cleaning	34%	Floors, walls, ceiling
Worn surfaces/refurbishment required	31%	Redecoration required
Cleaning – hand and food contact surfaces	24%	Chopping boards, fridge/freezer
Damage to structure	17%	Flooring, peeling paint
Lack/inadequate/unsuitable facilities/resources	15%	Bare plaster boards, MDF in use
Damage to food equipment/ utensils/fixtures/fittings	12%	Chopping boards

22-28% managers indicated that they did not have adequate financial resources and staffing levels to support the safe and hygienic preparation of food

83% managers considered that affordability is a key factor in carrying out structural repairs.

"What will generally slide will be deep cleaning" (HC4).
"I'm sure if I had a big walk-in fridge, I could do a better job of cooling things" (OM1)

67% managers considered that structural layout / fabrication of the kitchen does not impact food safety for the consumers.

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FHRS Non-Compliances: Confidence-in-Management (CIM)

FHRS Common Non-Compliances: Confidence-in-Management (CIM) (n=299 FHRS reports).

Contravention	Non-compliances	Comments
Food Safety Management System (FSMS) not completed	16%	No FSMS, partially completed
Incomplete monitoring records/records gaps	21%	Temperature checks not completed, partially completed monitoring records
FSMS not reviewed/not up-to-date	12%	Safer food better business (SFBB) out of date
Lack of training	22%	No hygiene training or training records
Refresher/higher level of training required	8%	Management training not sufficient to manage risks, refresher training needed
Practices - stock rotation/ contamination/ temperature control	8%	No temperature probe, contamination risks

28% believed documentation was unnecessary as long as food was prepared safely

91% agreed paperwork needs to be reviewed when there are changes to ingredients or how food is prepared.

86% agreed all food handlers should have an appropriate food safety qualification before starting work.

93% believed their level of food safety training was sufficient to manage food safety.

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EHO Perspective of Inspection Criteria Associated with FSC - CIM

CIM – General

- Attitude towards FSMS captured as part of CIM.
- The inspection goes beyond checking paperwork, practices are observed; cross references what is written or what is said.
- Other things are captured which are not necessarily part of the checklist.

"Your inspection should be taking you quite wide to understand the operating culture of the business. (FG1)

" you're asking questions from individuals … you're cross-referencing what they're telling you with what you've read in their food safety management system or what their manager or the owner of the business may well have told you" (FG1)

History of compliance

- History of compliance and likely future performance.
- Experienced inspectors can identify when there is good FSC

"Good history of compliance, consistently rated five" (FG1)

"Experience comes into it after a while … if you walk into a business, you know if something's not right. If you're half decent at what you do, you try and drill down into why things are as they are'.(FG1)

90% believed a good rating gives customers peace of mind the business is safe

91% considered a good hygiene rating shows food safety is a priority for the business

"It's a great indication[….] if you can see somebody who has five stars, you are walking into that place?'. yeah, they're doing everything correctly. No cause concern in terms of food safety culture" (HC).

" I always feel like if you see them as an asset to your business, you see them as a positive thing. You can actually get good things from them" (OM1).

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EHO Perspective of Inspection Criteria Associated with FSC - CIM

- **Fully implemented food safety management system (FSMS)**
- Extent to which the FSMS is implemented and effective.
- Staff knowledge and understanding of hazards and controls.

"documentation is quite often where the real gap is"(FG2)

"So, you're looking for it to be a living food safety management system, rather than just a document that sits on a shelf … would be my view" (FG1)

Training/knowledge

- Determines level of training and awareness of food safety hazards.
- Assessment of whether training is commensurate with role (FBO, managers and employees).
- Awareness of hazards does not guarantee good hygiene practices in the absence of FBO oversight.

"We're asking them about training, so whether or not … what the level of training there is amongst all staff. That's management level training or lower level training, so you're getting the full breadth of what sort of stuff people have done" (FG1)

"When someone joins us, they have to read the copy in the office" (OM10)

Only 51% of managers reported a level three qualification, and only 16% had received HACCP training

"…level two but they [referring to the EHO] actually recommended that I would I need to be doing a level three…so that's something that I need to complete" (M8).

"…fairly confident that there would definitely be gaps in my knowledge" (M7).

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EHO Perspective of Inspection Criteria Associated with FSC - CIM

Management responsibility

- Proactive and competent, awareness of legislative requirements, acting e.g. maintenance and ensuring hazards are being controlled.
- Approachability and visibility to ensure resolution of issues, communication of the rules and making new staff aware of the culture.
- Delegation of responsibilities ensuring management checks, supervision and training.

"…In those places with a poor food safety culture, the FBO is often absent" (FG2)

"There has to be a framework from the top, which gives the people in the organisation the rules in which to act and behave'' (FG2).

"When you get a visit from EHO, or something like that. I'll ask him about it." (OM10)

43% managers reported challenges in communicating food safety procedures because of language differences.

16% managers indicated that they did not reprimand staff whenever poor food safety and/or hygiene is observed.

98% managers believed their actions influence the food safety and hygiene behaviours of food handlers in their business.

47% managers thought that it is difficult to follow all food safety procedures during busy periods

"Oh, it completely determines it doesn't influence it determines what they do".(FBO)

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Conclusions

- Regulatory inspections seen as incentive and motivation for maintaining good practices.
- Non-compliance data associated with CIM revealed that commonly raised issues were aspects that can be considered organisational factors such as training, implementation of FSMS, management commitment, resources, and the work environment.
- The evaluation of FSC within the FHRS can provide valuable data and insight into food safety practices and culture in different types of business. It can inform the development of tailored interventions and initiatives to improve FSC in the individual food businesses and throughout the food service sector.
- Management commitment to setting clear expectations and consistently model required behaviours is essential for shaping FSC.

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Conclusions

- Management commitment is considered a contributory factor to the effective implementation of FSMS.
- Food service managers tendency towards optimistic bias and illusion control may contribute to failure to implement effective controls and safety performance.
- Provision of resources is required to enable consistent compliance behaviour, hence, to promote a positive FSC; management must facilitate the employees' ability to engage in safe food handling practices by removing barriers and providing the necessary resources, time, training, and organisational support.
- Valuable insights provided by EHOs in this study, highlights the importance of the engagement of frontline workers in food safety culture research.

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Contact Details

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Here to give the UK seafood sector
the support it needs to thrive.

Live Bivalve Mollusc Water Quality Regulation

Jesse Drake – Regulation and Science Adviser

Presentation to: East Midlands Councils

5 September 2024

What is Seafish?

- NDPB sponsored by Defra and funded by a levy on the first sale of fish in the UK.
- Work across all of the UK in partnership with industry.
- Operate across the entire supply chain, from vessels to fishmongers, processors to restaurants.

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We're here to give the UK seafood sector **the support it needs to thrive**

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Purpose

- Todays' session will be an introduction to good management practices for live bivalve molluscs (e.g. clams, mussels, oysters).
- We will focus on practical tips for regulating bivalve aquaculture businesses. From harvest, through to depuration (purification), packing, storage and dispatch.
- We will include information on the makeup of the industry, how to identify healthy bivalves, how to spot mishandled stock, as well as practical handling and sampling tips and tricks

About the Live Bivalve Mollusc (LBM) Industry

- Todays' focus is on aquaculture businesses, however note that LMBs are also fished and hand gathered in the UK.
- LBM businesses are by and large small scale, with a few large players in the South and Southwest of England, as well as Western Scotland and the Shetlands.
- Aquaculture harvest methods in the UK include dredging, trestles, with some larger mussel farms growing product on ropes.
- Product is sold within the UK, however preference is for export to European consumers.
- Brexit has had significant trade impacts on the industry.
- Owners skew older and male, prefer communication face to face or over the phone. Personal relationships are worth investing in.
- Prefer localised information and decision making about harvesting and water quality.
- Open to trying new methods of production and share information among businesses.

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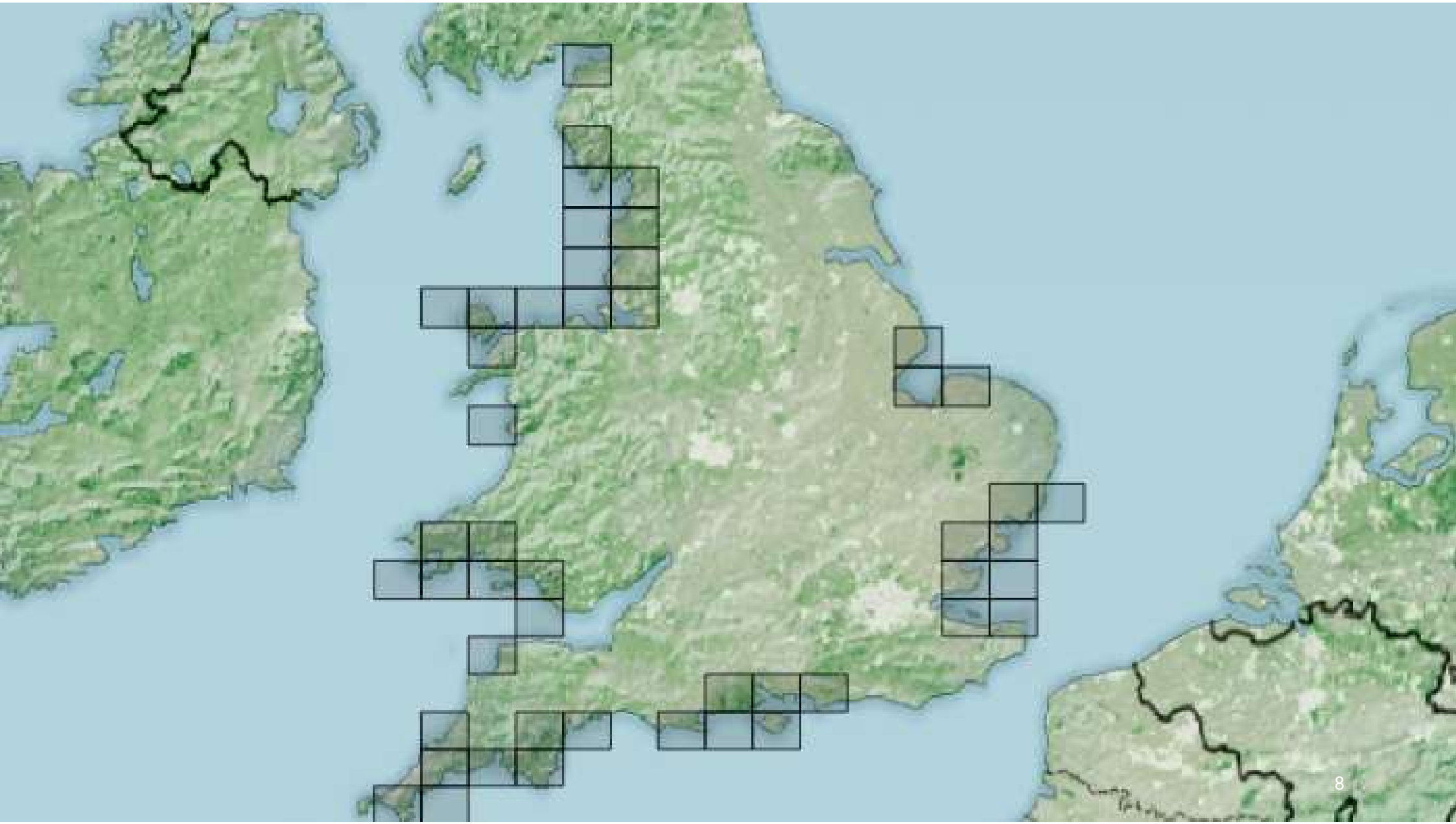
Production Areas

Classification System - Introduction

- Shellfish production areas are classified according to the level of indicator bacteria (*E. coli*) that is present in shellfish harvested from that area.
- To be classified, the applicant (harvester) must submit an application form in conjunction with their local authority.
- A contractor will then complete a sanitary survey of the are, identifying pollution sources, sampling points and a sampling plan.
- 10 Official Control samples must then be taken, at least a week apart, for a provisional classification to be awarded.
- The profitability of shellfish beds can rest upon the areas ability to maintain an ‘A’ classification, as this enables direct export to Europe.



Classification System – High Results

- High results *E. coli* levels can occur due to high rainfall causing sewage overflows, agricultural runoff, migratory birds or illegal dumping (among other things).
- When high results occur, the LA acts as the convenor of a **Local Action Group** who are charged with gathering evidence to contribute to investigations on the cause behind the high result.
- Where one-off causes of pollution are identified, high results may be struck from the record – however this does not occur often.

Handling

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Handling of LBMs - Sampling

- EHOs need to handle LBMs when taking Official Samples, but also should know what good handling protocols are to identify potential issues during depuration, storage and display.
- When taking samples from production areas:
  - Wash with clean salt water.
  - Do not immerse shellfish in fresh water.
  - Land bivalves into protective containers or mesh bags (not plastic bags).
  - Store in a cool dry place.
  - Package samples for dispatch ASAP following Cefas guidance.
  - Don’t allow water to pool in the concave part of shells (store concave section down).

Depuration (Purifying)

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Depuration

- LBMs must be purified unless
  - Harvested from Class A waters
  - Heat treated at an authorised establishment.
- Depuration is the use of a controlled aquatic environment (tanks circulating clean seawater) that allow LBMs to purge contaminants.
- Depuration and classification are linked, depuration cannot remove all impurities from a highly contaminated sample.
- Seafish offers standard tank designs, HAACP guidance, as well as multi-day training courses for EHOs on the ins and outs of Depuration.

Depuration – Quick Tips

- For depuration to be effective, shellfish must be alive and active.
- This is best observed by foam gathering on surface waters.
- Water should be free of turbidity, with sufficient flow and space to ensure all bivalves are being fed with sterile water.
- Tanks should be drained before bivalves are removed, to avoid stirring up sediment.
- Depuration does not (under most circumstances) control for **Norovirus**.

Packaging and Storage

Packaging

- Oysters and scallops must be packaged concave shell downwards to avoid moisture pooling.
- Bivalves species cannot come into contact in within packaging, or be able to contaminate each other through proximity.
- Packs must remain closed after packaging until sold or transferred to another dispatch centre.
- After packaging, bivalves must not be sprayed, or placed in contact with water (including ice melt water) until retail sale.

Handling at Point of Sale – Retail or Food Service

- Store bivalves in cool conditions (in packaging on ice) until preparation or sale.
- Never re-immerse LBMs in water, even for washing before preparation.
- Wash shucking knives thoroughly between preparation sessions, and when switching between batches of LBMs
- Avoid shucking knives with wooden handles, as these can cross contaminate LBMs.
- Open LBMs should be subject to a ‘percussion test’ to ensure they are still alive and fit for preparation.

Further Information

Full Training Courses

Bivalve Shellfish Hygiene Course

- Two-day training programme for Environmental Health Officers (EHOs) – Counts towards CPD
  - Part one introduces the bivalve purification process. It also looks at purification as a platform for carrying out effective official controls.
  - Part two analyses approval and inspecting along with evaluating purification scenarios.
- The course is delivered remotely via Microsoft Teams or Zoom and costs £400 (no VAT) per person.

Official Control Sampling Training

- Half-day remote training course for shellfish producers aiming to collect shellfish and water samples for Local Authorities.
- Shows FBOs how to collect, process and transport shellfish samples for official controls purposes in accordance with Official Controls Guidance.
- The course is delivered remotely via Microsoft Teams or Zoom and costs £150 (no VAT) per person including EHOs.

Thank you

jesse.drake@seafish.co.uk

Changes to EU *L. monocytogenes* criteria (2073/2005): What Happens Next?

East Midlands Councils

Karin Goodburn MBE Hon FIFST

Chair - Industry *Listeria* Group, DG – Chilled Food Association, ECFF Rapporteur: www.chilledfood.org/listeria

5/9/24

- Current assimilated Regulation 2073/2005 Micro Criteria for Foodstuffs
- EU-agreed amendments to the Regulation
- Implications
- Outstanding issues – enforcement approaches, UK assimilation? FSAI approach
- Lm guidance

What Makes Ready to Eat (RTE)?

- **Manufacturer's risk assessment & product design, i.e. HACCP plan [EU Reg 852/2004]**
- **Appropriate (growing &) production controls – validation + monitoring**
  - Minimise potential for contamination by zoonotic organisms
- **Hygienic preparation and packing – validation + monitoring**
  - Prevent re-/cross-contamination
  - (thermal) Process
- **Limited shelf life - UK chilled prep food shelf lives third to half of usual Continental [EU Reg 2073/2005]**
  - Ensure peak quality
  - Minimise opportunity for microbial growth
- **Chilled distribution, sale and storage - UK: 5°C max to RDCs required commercially [No EU law – set by MSs]**
  - Minimise potential for microbial growth - domestic fridges ~7°C (FSA project B13006)
- **Appropriate usage instructions [EU Reg 1169/2011]**
  - E.g. Chilled storage
  - Durability date – 'use by' for chilled, 'best before' otherwise
  - No further process to reduce/eliminate hazard microorganisms

Applies to B2B & B2C
UK Supplier QA systems in major chilled FBOs assure supplier compliance

CHILLED FOOD ASSOCIATION

Translates to: Fundamental Food Safety Rules

- **The 4Cs:**
  - **Clean**: remove soil and protein before applying surface biocide, decontaminate produce
  - **Cook**: 70°C/2 mins or 90°C/10 or 121°C/3 or SUSSLE?
  - Avoid **Cross-Contamination**: segregate, clean
  - **Cold**: prevent non-proteolytic *C. botulinum* toxin production and *B. cereus* growth, reduce growth rate of *L. monocytogenes* (*cf* 5°C: 8°C 2x rate, 10°C 3x)

- **5th rule:**
  - Use good quality raw materials/ingredients – **vital for raw/minimally processed**

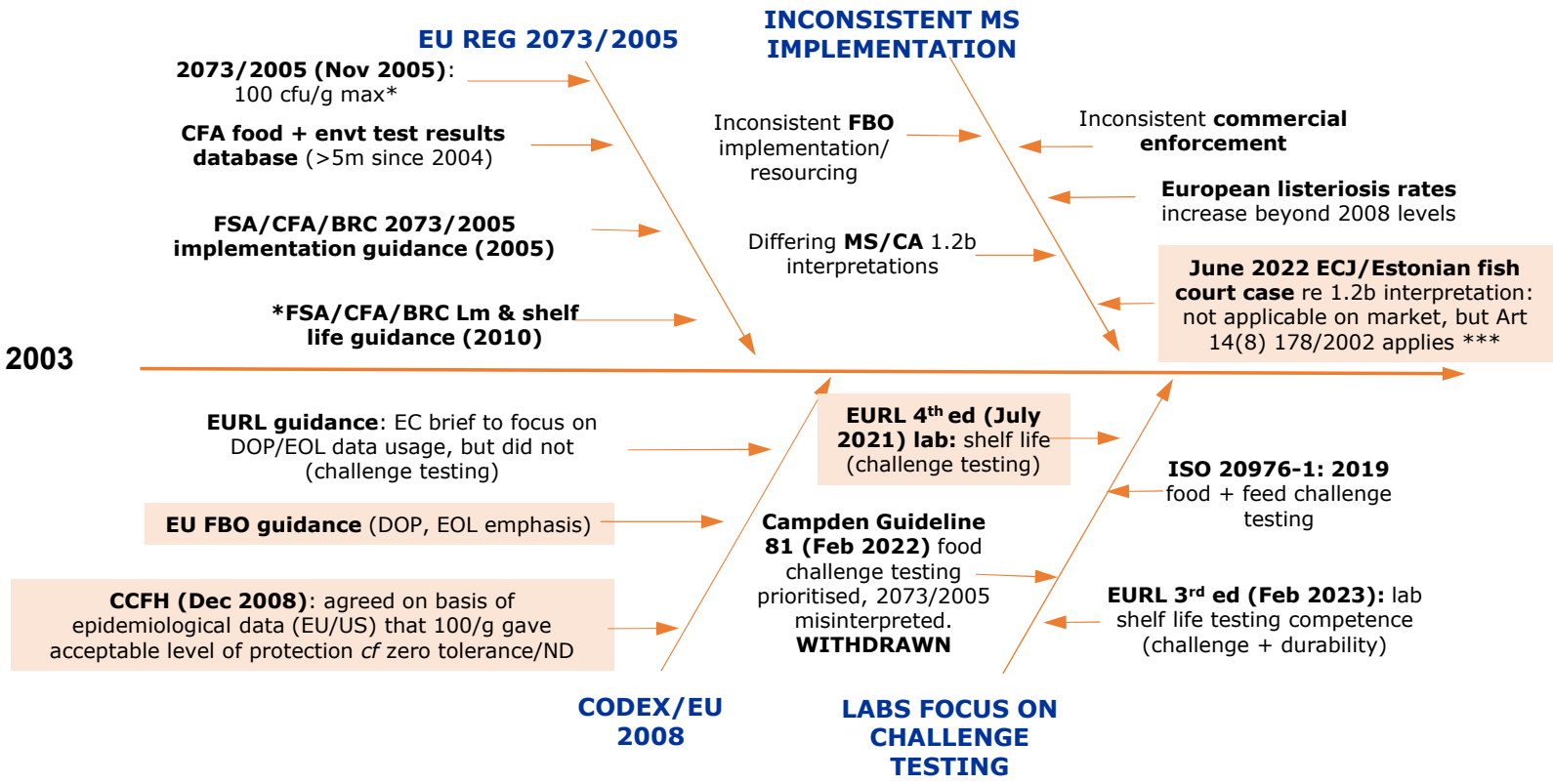
EU Lm Food Safety Criteria: Micro Criteria for Foodstuffs Reg 2073/2005

Food category	Sampling plan N	Sampling plan c	Limits	Stage where the criterion applies
Ready-to-eat foods <u>able</u> to support the growth of *L. monocytogenes*, other than those intended for *infants and for special medical purposes	5	0	100 cfu/g: applies if the manufacturer is able to demonstrate, to the satisfaction of the competent authority, that the product will not exceed the limit 100 cfu/g throughout the shelf-life. The FBO may fix intermediate limits during the process that must be low enough to guarantee that the limit of 100 cfu/g is not exceeded at the end of shelf-life (footnote (5))	Products placed on the market during their shelf-life
	5	0	Not detected in 25g: applies before products have left the immediate control of the producing FBO **<u>when</u>** he is **NOT** able to demonstrate to the satisfaction of the competent authority that the product will not exceed the limit of 100cfu/g throughout the shelf life (footnote (7))	Before the food has left the immediate control of the food business operator, who has produced it
Ready-to-eat foods *<u>unable</u> to support the growth of *L. monocytogenes,* other than those intended for **infants and for special medical purposes	5	0	100 cfu/g	Products placed on the market during their shelf-life

CURRENT

EU Reg 2073/2005 published 15 Nov 2005, came into force 1 Jan 2006

Lm criteria journey milestones & 2024 changes



Sept 2023 proposal to change(s) to 1.2b:
ND throughout life

4 week EC consultation to 8 May 2024: 81 responses, 79 with concerns

WTO given until 16 July 2024 to comment

EU SCOPAFF agreed 3 July 2024: BE voted against, FI abstained, 25MSs voted for

Shall apply from 1 July 2026 (unless Council/EP veto)

- With evidence of RTE food supporting growth compliance throughout shelf life (criterion 1.2a), otherwise CA can specify not detected at point of production (criterion 1.2b)

** FSA/CFA/BRC guidance implemented by major industry in the UK, used in enforcement (also in Ireland)

*** Food must be safe

CCFH = Codex Committee on Food Hygiene
FBO = Food Business Operator (defined in EU Reg 178/2002)
CA = Competent Authority
MS = EU Member State
DOP = Day of Production
ND = Not Detected
EOL = End of Life

Updated 10/7/24

EU Law: Micro Criteria for Foodstuffs Reg 2073/2005

Food category	Sampling plan N	Sampling plan c	Limits	Stage where the criterion applies
Ready-to-eat foods <u>able</u> to support the growth of *L. monocytogenes,* other than those intended for *infants and for special medical purposes	5	0	100 cfu/g: applies if the manufacturer is able to demonstrate, to the satisfaction of the competent authority, that the product will not exceed the limit 100 cfu/g throughout the shelf-life. The FBO may fix intermediate limits during the process that must be low enough to guarantee that the limit of 100 cfu/g is not exceeded at the end of shelf-life (footnote (5)	Products placed on the market during their shelf-life
	5	0	Not detected in 25g: applies before products have left the immediate control of the producing FBO **<u>when</u>** he is **NOT** able to demonstrate to the satisfaction of the competent authority that the product will not exceed the limit of 100cfu/g throughout the shelf life (footnote (7))	Products placed on the market during their shelf-life ~~Before the food has left the immediate control of the food business operator, who has produced it~~
Ready-to-eat foods *<u>unable</u> to support the growth of *L. monocytogenes,* other than those intended for **infants and for special medical purposes	5	0	100 cfu/g	Products placed on the market during their shelf-life

AGREED

16/7/24

Shall apply from 1 July 2026

Amendment text from the European Commission

- The risk of contracting listeriosis through food is strongly influenced by the ability of the contaminated food to support the growth of Lm to high levels. In particular, it scientifically recognised that ingestion of **food containing concentration of Lm over the limit of 100 cfu/g is potentially injurious to health for heathy consumers**. Therefore, **long shelf-life [*believed to refer to >P+4 days*] ready-to-eat foods**, other than those intended for infants and for special medical purposes, which are able to support the growth of Lm beyond the limit of 100 cfu/g and which are not heat-treated in their final package **represent a critical food commodity group** on which risk mitigation measures should be focused.

- The EC's motivation to develop the legal act is increasing number of illnesses linked to Lm in RTE foods. European consumer's health is the priority of the European Commission. The Commission receives strong support from the EU MSs.

2022 European Top 5 Foodborne Diseases: Morbidity & Mortality

Disease		Hospitalisations				Deaths		Outbreaks			
	No. confirmed cases	No reporting ‡countries	No. hospitalised	% hospitalised	Outcome available (%)	Reported Deaths	Case Fatality (%)	No.	Related Cases	Case rate	Lm Fatality Rate in comparison
Campylobacteriosis	**137,107**	16	10,551	**23.5**	61.6	**34**	0.04	255	1,097	45.1	*453*
Salmonellosis	**65,208**	17	11,287	**38.9**	56.5	**81**	0.22	1,014	6,632	15.3	*82*
Yersiniosis	**7,919**	17	636	**30.1**	47.5	**0**	0	14	96	2.2	
STEC infections	**7,117**	17	1,130	**38.5**	67.8	**28**	0.58	71	408	2.1	*31*
Listeriosis	**2,738**	19	1,330	**96.0**	57.6	**286**	18.1	35	296	0.62	

European 2022 increases over 2021: cases up 25%, case fatality rate up 32%, deaths up by 46%

Source: EU One Health 2022 Zoonoses Report: https://www.ecdc.europa.eu/sites/default/files/documents/EFS2_8442.pdf

EXCLUDES UK

European Listeriosis Rates 2017-22

UK 2020 data: Food Security Report 2021. **UK 2022 data provisional**

Sentinel system coverage:
Belgium: 2016-21 80% pop (Surveillance not mandatory)
Spain: 2016-21 no info
Switz incs Liechtenstein data to 2020

EU One Health 2022 Zoonoses Report:
https://www.ecdc.europa.eu/sites/default/files/documents/EFS2_8442.pdf

Non-EU rates:
South Africa: 1.84 (2017-18)
USA: 0.24
Australia : 0.3 (2013)
NZ: 0.6
US rates:
cdc.gov/listeria/technical.html
Australia:
https://www.health.vic.gov.au/infectious-diseases/listeriosis#public-health-significance-and-occurrence-of-listeriosis
NZ:
www.foodstandards.gov.au/publications/Documents/Listeria%20monocytogenes.pdf

2018	Cases	Rate	2019	Cases	Rate	2020	Cases	Rate	2021	Cases	Rate	2022	Cases	Rate
Estonia	27	2.05	Spain	505	–	Spain	191	–	Spain	224	–	Denmark	86	1.5
Finland	80	1.45	Estonia	21	1.59	Finland	94	1.7	Iceland	5	1.4	Finland	70	1.3
Spain	370	0.89	Iceland	4	1.12	Slovenia	26	1.2	Finland	70	1.3	Sweden	125	1.2
Sweden	89	0.88	Sweden	113	1.1	Iceland	4	1.1	Denmark	62	1.1	Spain	437	0.95
Denmark	49	0.85	Denmark	61	1.05	Malta	5	0.97	Sweden	107	1	Slovenia	20	0.95
Lux	5	0.83	Malta	5	1.01	Sweden	88	0.85	Slovenia	19	0.9	Belgium	87	0.94
Germany	683	0.82	Slovenia	20	0.96	Denmark	44	0.76	Belgium	65	0.7	Switz	78	0.89
Belgium	74	0.81	Finland	50	0.91	Norway	37	0.69	France	435	0.64	Estonia	11	0.83
Latvia	15	0.78	Belgium	66	0.72	Switz	58	0.67	Germany	560	0.67	Germany	548	0.66
Lithuania	20	0.71	Germany	570	0.69	Germany	544	0.65	Lux	4	0.63	France	451	0.66
Portugal	64	0.62	NL	103	0.6	Lux	4	0.64	Latvia	10	0.53	Hungary	64	0.66
Switz	52	0.61	France	373	0.56	Belgium	54	0.59	NL	86	0.49	EU 27	2,738	0.62
Iceland	2	0.57	Portugal	56	0.54	NL	90	0.52	EU27	2,183	0.49	EU27+EFTA	2,848	
France	338	0.51	Norway	27	0.51	France	334	0.5	EU27+EFTA	2,268	0.44	Lux	4	0.62
Slovenia	10	0.48	Lux	3	0.49	Austria	41	0.46	Austria	38	0.43	Portugal	63	0.61
EU + EFTA	2,549	0.47	EU + EFTA	2,621	0.46	Portugal	47	0.46	Italy	241	0.41	Italy	345	0.58
Norway	24	0.45	Austria	38	0.43	Latvia	8	0.42	Estonia	5	0.38	Norway	30	0.55
Ireland	21	0.43	Switz	36	0.42	EU27+ EFTA	1,876	0.42	Switz	33	0.38	NL	94	0.53
NL	69	0.4	Hungary	39	0.4	Hungary	32	0.33	Norway	20	0.37	Iceland	2	0.53
Poland	128	0.34	Ireland	17	0.35	Italy	147	0.25	Hungary	35	0.36	Austria	47	0.52
Austria	27	0.31	Italy	202	0.33	Cyprus	2	0.23	Poland	120	0.32	Czechia	48	0.46
Slovakia	17	0.31	Slovakia	18	0.33	Estonia	3	0.23	Ireland	14	0.28	Slovakia	25	0.46
Czechia	31	0.29	Poland	121	0.32	UK	143	0.21	UK	184	0.27	Lithuania	13	0.46
Italy	178	0.29	Latvia	6	0.31	Greece	20	0.19	Lithuania	7	0.25	Latvia	8	0.43
Hungary	24	0.25	Czechia	27	0.25	Poland	62	0.16	Slovakia	13	0.24	Poland	142	0.38
UK	168	0.25	UK	154	0.23	Czechia	16	0.15	Czechia	24	0.22	Ireland	17	0.34
Malta	1	0.21	Lithuania	6	0.21	Slovakia	7	0.13	Greece	21	0.2	UK*	151	0.26
Greece	19	0.18	Bulgaria	13	0.19	Croatia	5	0.12	Croatia	8	0.2	Malta	1	0.19
Romania	28	0.14	Croatia	6	0.15	Ireland	6	0.12	Cyprus	1	0.11	Croatia	5	0.13
Bulgaria	9	0.13	Cyprus	1	0.11	Bulgaria	4	0.06	Romania	11	0.06	Cyprus	1	0.11
Cyprus	1	0.12	Greece	10	0.09	Romania	2	0.01	Bulgaria	3	0.04	Bulgaria	5	0.07
Croatia	4	0.1	Romania	17	0.09	Lithuania	0	0	Malta	0	0	Greece	7	0.07
									Liecht	0	0	Romania	14	0.07
									Portugal	0	0	Liecht	0	2

Ireland and UK rates consistently below EU/EFTA mean

Examples of Major Fatal Listeriosis Outbreaks & Root Causes

Country (year)	Outcomes and Root Causes
UK (1987-9)	>17 dead, 200+ cases. Pâté imported from Belgium. **Post-process hygiene**
France (1992)	92 dead, 272 cases. Jellied pork tongue. **Post-process hygiene**
USA (1998-9)	17 dead, 4 miscarriages/stillbirths, 101 cases. Cooked meat. **Contamination from air filtration unit maintenance**
Canada (2008)	22 dead, 57 cases. CAD 27m. Cooked sliced meat. Dirty slicer. **Post-process hygiene**
Denmark (2014)	17 dead, 41 cases. Cooked meat (rullepølse). **Post-process contamination**
South Africa (2017-18)	216 dead, 1060 cases. Cooked RTE meat products. **Post-process contamination**
Netherlands, Belgium (2017-19)	3 dead, 21 cases. Cooked meat product. **Post-process contamination**
Spain (2019)	3 dead, 7 miscarriages, 200+ cases. Cooked meat product. **Post-process contamination**

See: Table A2 in *Listeria monocytogenes* in ready-to-eat foods: attribution, characterization and monitoring. FAO (2022). www.fao.org/3/cc2400en/cc2400en.pdf. **79 out of 88 listeriosis outbreaks where a root cause was identified were found to be due to post-process contamination, i.e. environmental hygiene control is critical**

Also: EU frozen sweetcorn (2015-18) – not produced to RTE (High Care) standards but consumed uncooked by some

European Listeriosis Rates 2017-21

EU One Health Zoonoses Reports

*Sentinel system population coverage:
Belgium: 2016-21 80%
Spain: 2016-21 no info

Non-EU rates:
South Africa: 1.84 (2017-18)
USA: 0.3 (2022, CDC)
Australia : 0.3 (2013)
NZ: 0.4-0.7 (2013-2019)
UK: 0.24 (2017-21)

UK 2020 data: Food Security Report 2021. 2021 data UKHSA

2017-2021	Number of Cases	Rate/100k population
Spain*	1574	0.67
Belgium*	332	0.72
Finland	383	1.40
Iceland	21	1.19
Denmark	274	0.95
Sweden	478	0.93
Estonia	60	0.91
Slovenia	88	0.83
Germany	3083	0.74
Luxembourg	21	0.69
France	1850	0.55
Netherlands	456	0.53
Switzerland + Liechtenstein	224	0.52
Norway	104	0.46
Latvia	42	0.44
Malta	11	0.44
EU27 (2021 only)	2,183	0.49
EU28 EFTA EEA	7,650	0.47
EU27 EFTA EEA (2021 only)	1,876	0.42
Portugal	209	0.41
Austria	176	0.40
Hungary	166	0.34
Italy	932	0.31
Lithuania	42	0.30
Poland	547	0.29
Ireland	72	0.28
UK	814	0.24
Czechia	128	0.24
Croatia	31	0.15
Greece	90	0.13
Bulgaria	42	0.12
Cyprus	5	0.11
Romania	68	0.07

Issues: Criterion 1.2b change to apply throughout life

Issues:

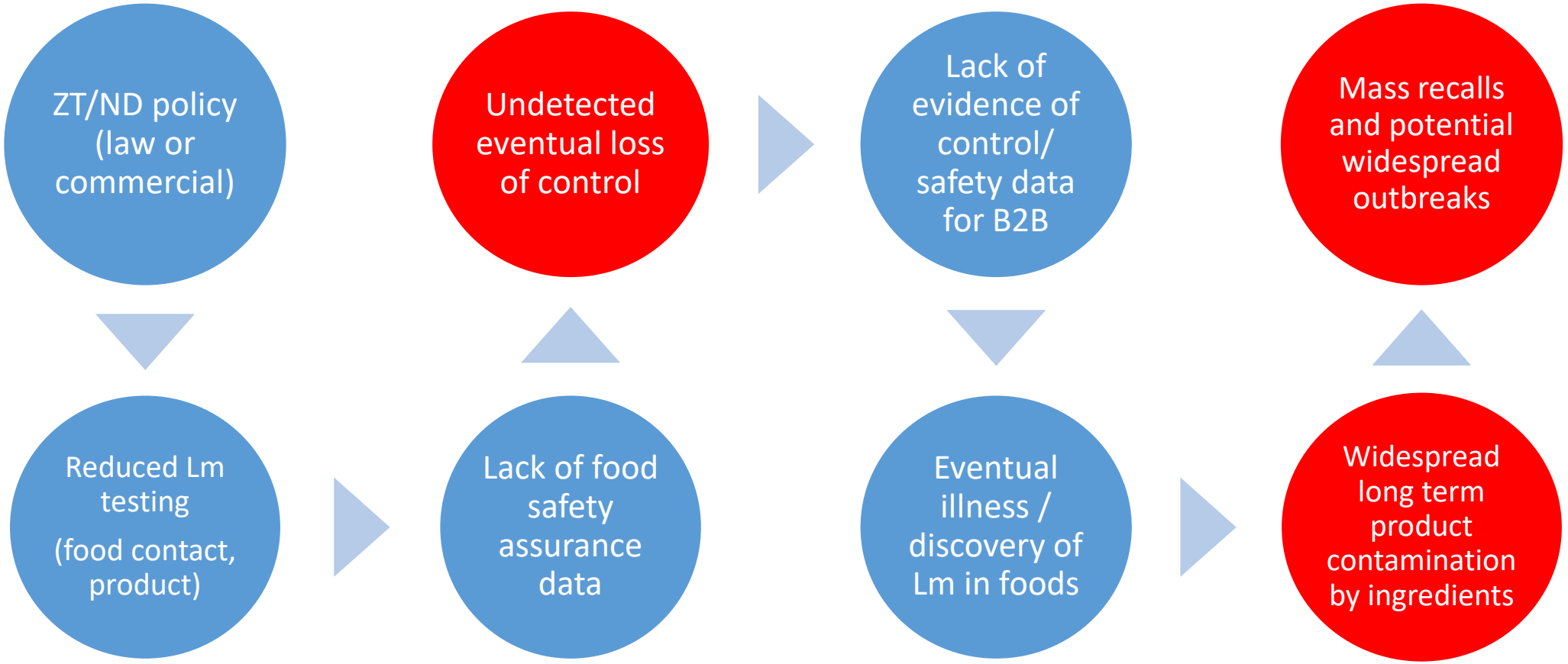
- **Current legislation is effective when enforced: IE and UK listeriosis data**
- **No consideration of differences between Lm strains' virulence, i.e. not science-based. Hazard, not risk-based law**
- **No recognition that testing is not a control measure**
  - Despite 14.6 of 178/2002 Lm ND in 25g is not a guarantee of absence in a whole batch, and
  - Detection does not imply a whole batch is contaminated
  - How will FBOs be able to demonstrate compliance? Sufficient just for spot checks on end product??
- **Recipient MS within EU do not have knowledge of shelf life work done so reject any food on detection of *Lm* =>**
  - increased food waste - reduced food security - loss of products from the market without proven food safety issues
- **Other key factors not considered, e.g. chill chain performance, consumer/food handler practice, cross-contamination**
- **Best practice (DOP, EOL, env data, controlled chill chain) not acknowledged**
- Still **too little emphasis in 2073/2005 of absolute need to proactively identify contamination - especially of food contact surfaces** - and take immediate action, i.e. scrupulous hygiene monitored constantly.
  - New EU environmental sampling guidance refers to ISO docs that have to be purchased – unhelpful!

Implications: Criterion 1.2b change to apply throughout life

Example foods affected: Sandwiches + fillings, sushi, salads, wraps, meat products, fish products, dairy products, prepared produce, dips, dressings, deli products, pies, flans, quiches, desserts

- **Assured compliance with 1.2b would require:**
  - Reformulation to kill Lm (e.g. pH<3.3) or
  - In-pack thermal process or HPP or irradiation or
  - Lm bacteriophage - does not ensure absence (reduces load by 1-2 logs, activity ceasing after ~24h of application). Cannot clean up food and not legal on POAO in EU or UK + very costly, or
  - Shorten shelf life to P+4 max so criterion 1.3 would apply (100/g max) – **P+4 max does not assure safety!**
  - Another intervention
- **Consequences of 1.2b proposal despite no food safety risk for foods compliant with best practice include:**
  - **FBOs not using best practice are most likely to continue to not do so until enforcement action is taken**
  - loss of foods from market
  - increased food waste
  - reduced food security
- **Need:**
  - **Recognition of efficacy of DOP, EOL+ env controls + data + current approach to be retained by UK + IE**
  - **Much more emphasis on environmental controls + active management + enforcement:** www.chilledfood.org/Listeria, **Guidance:** https://bit.ly/3PBIu5p

Example of US experience with Zero Tolerance/Not Detected



Challenge testing: irrelevant to ND, unnecessary, unrepresentative, narrowly applicable, potentially misleading and costly

- **Only demonstrates (e.g. thermal) process efficacy** – no relevance to presence/absence
- **Only covers an individual formulation (recipe)**
- **Ignores prerequisite of assuring & monitoring production area hygiene** & continuous routine product monitoring
- **Uses rapid-growing strains in log phase and typically higher loads than normally detected**
- **Storage trials are proven be effective in setting shelf life - does not take historical (real) data into account**
- **Cannot replicate factory conditions, nor replace volume of data + professional knowledge**
- **Safe food, whether or not challenge-tested to set shelf life, cannot be made in unhygienic conditions**
- **Does not reflect actual production/supply chain control**, which results in low levels (primarily ND) and low prevalence
- **Durability testing is required rarely -** can set shelf life using info on e.g. product characteristics, historical data etc.
- **Shelf life would be set by 3rd party** without knowledge of raw materials, manufacturing areas or processes - **Food safety is FBO's legal responsibility**
- **Spending money on real controls e.g. hygiene, temperature control and Supplier Quality Assurance, is the priority**
- **Highly costly (EUR 10-15k per recipe)**
- **Insufficient lab capacity**

Instead use proven effective controls: Supplier QA, environmental hygiene and limit shelf life inc using DOP & EOL data

Shelf Life

- **UK/IE shelf lives typically 30-40% those for equivalent foods sold on Continent (FSA project B13006)**
- **EC is leaving shelf life establishment approach to Member States. IE has stated will not require it**
- **CFA/BRC/FSA (+ other assns.) guidance on 2073/2005 implementation (2005)**
- **CFA/BRC/FSA shelf life guidance (2010):**
  - **Basis of UK industry required approach and FSA-sponsored training of EHOs**
  - **Endorsed by FSAI (https://www.fsai.ie/publications/guidance-note-18-validation-of-product-shelf-life)**
  - **Best practice controls and monitoring (Principles of an environmental monitoring programme for Lm – 2023 CFA/ECFF/Industry *Listeria* Group)**
  - **Proven effective approach *viz.* epidemiological data – MUST RETAIN and expand application:**

Supplier QA, environmental hygiene and limit shelf life including by using DOP & EOL data

Best Practice Data - CFA Members' Lm Database*: Jan 2012-Dec 2023

RTE food prevalence

(1,082,604 samples):

~0.6% Lm at any point during shelf life, of which

~0.014% at quantifiable levels, i.e. >20 cfu/g LOQ (Note: LOQ of 10/g commonly used):

DOP: 97 quantifiable out of 842,757 samples

EOL: 53 quantifiable out of 239,847 samples

DOP: Day of Production
EOL: End of Life

Production environment prevalence (2,075,061 samples):

Food contact surfaces:

~0.3% Lm (1,027,962 samples)

Non-Food contact surfaces:

~2.6% Lm (1,047,099 samples)

*** Provisional data**

All detections are investigated and addressed

How to manage risk for RTE food that supports *Lm* growth to >100 cfu/g during shelf-life?

Údarás Sábháilteachta Bia NA hÉIREANN
Food Safety AUTHORITY OF IRELAND

- Focus on basic principles of don't let it in, make sure cleaning and sanitation will remove it and don't let it stick in poor fabric or equipment with poor hygienic design
- Implement robust supplier controls, hygiene programme, staff training, environmental & food sampling testing programme (limit ND in 25 g*)
- Act immediately if *Lm* detected in raw material, end product or environment
- For products not at retail level further processing to remove *Lm* risk permitted provided does not pose a risk for public or animal health and authorised by the CA (e.g. heat treatment & made into new product with *Lm* contamination removed)

Challenges

Legislated responsibility on FBOs to produce **safe food** (Art 14 178/2002)

However, some FBOs producing RTE food:

- Struggle to understand and comply with *Lm* micro criteria in 2073/2005
- Limited resources such as technical knowledge, staff, floor space and/or funds

*** Legal basis? How is this (positive release) achievable particularly for short shelf life ingredients?**

Some concerns raised by food industry reps

Údarás Sábháilteachta Bia NA hÉIREANN
Food Safety AUTHORITY OF IRELAND

This proposal mandates the challenge testing of products

- **Competent Authorities in ROI will not be mandating challenge testing after 1st Jan 2026**

Durability studies to assess growth in naturally contaminated product is better

- Good tool to verify the established shelf-life but not suitable for validation purposes due to non-uniform distribution of *Lm* in food. **Need high no. test results as evidence = €€€**

Trade bodies have collected a lot of data points showing the current approach works fine

- While information gathered by individual FBOs verifies that its own FSMS is working appropriately, it is not transferrable data as the situation differs for each FBO

If *Lm* is detected in a 25g sample, it does not imply that the whole batch is contaminated

- In accordance with Art. 14.6 of Reg. 178/2002, as amended '*Where any food which is unsafe is part of a batch, lot or consignment of food of the same class or description, it shall be presumed that all the food in that batch, lot or consignment is also unsafe, unless following a detailed assessment there is no evidence that the rest of the batch, lot or consignment is unsafe.*'

Some concerns raised by food industry reps

Products may have a test result of *Lm* ND in 25 g when leaving the immediate control of the producing FBO but later in the chain these products may have a test result of detected in 25 g due to temperature abuse or cross-contamination at the point of use or sale (e.g. delicatessens/foodservice)

- Testing is never 100 % guarantee of safety!
- *Lm* not distributed evenly throughout batch due to how food is contaminated (on the surface of the food or throughout the food product), a clustered distribution of microorganisms in the food, or how the intrinsic and extrinsic characteristics of different food matrices affect microbial growth and survival*
- In accordance with Art. 3.1(b) of Reg. 2073/2005 '*FBOs shall ensure…that the food safety criteria applicable throughout the shelf-life of the products can be met under reasonably foreseeable conditions of distribution, storage and use* **[includes domestic fridges –KG]**
- If cross-contamination was possible at another FBO, all circumstances would be investigated to ensure enforcement action is proportionate & on risk-basis

*See ICMSF Sampling - YouTube

Domestic Fridges – the Missing Link
Where most chilled foods spend most of their time

- **Industry *Listeria* Group-Proposed design, performance and usage project being pursued at FSRN**
- **Recent surveys**
  - **Cardiff Met University:** https://www.cardiffmet.ac.uk/health/zero2five/news/Pages/Research-study-finds-71-percent-of-household-fridges-tested-operating-at-unsafe-temperature.aspx
    - Spring/summer 2023 self-reported survey of 201 fridges
    - Respondents' ages: 22% 18-24, 23% 25-34, 9% 65-74, none 75+
    - Fast-reacting thermometer placed in fridge door (= warmest fridge part)
    - Recorded temperatures: 0°C to 20°C (figure)
    - 29% fridges reported at ≤5°C, 71% >5°C, with 37% ≥10°C

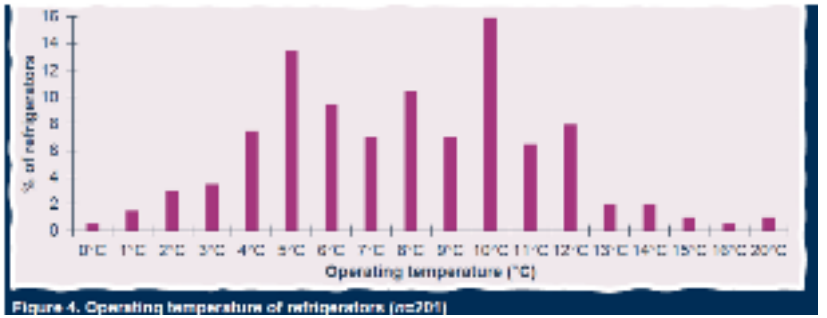


Figure 4. Operating temperature of refrigerators (n=201)

  - **Netherlands:** https://www.sciencedirect.com/science/article/pii/S0168160523004336
    - Mean temperatures of 534 fridges:
      - bottom shelf: 5.7°C
      - upper shelf: 7.7°C
    - Growth rates (µmax) of pâté and cooked ham were modelled using the square root model
    - Domestic storage for either <7 days or below 7°C reduced listeriosis cases by >80 %
    - Elderly (65+) people's fridges on average 0.6°C higher than those of people ≤35
    - Reduction of listeriosis cases may be achieved by targeted communication especially to the elderly

Listeria-related Guidance Available

Author	Year	Title	Web link
ANSES, EURL	2023	Lm Technical guidance document on sampling food processing area. Version 4	https://zenodo.org/records/8406616
BRCGS	2022	Global Standard - Food Safety. Issue 9.	https://www.brcgs.com/store/global-standard-food-safety-(issue-9)/p-12187
CFA	2008 2016 2023 2023	Listeria Management Guidance Micro Testing & Interpretation (2nd ed) Principles of an Environmental Monitoring Program for the Management of Lm Action on detection &/or enumeration of Lm or L. spp in food including at <LOQ	 http://tinyurl.com/CFAMTIGv2 https://bit.ly/3PBIu5p http://tinyurl.com/LmDetectionAction
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CODEX Alimentarius Commission	2009	Guidelines on the Application of General Principles of Food Hygiene to the Control of Lm in Foods CAC/GL 61 – 2007	http://www.fao.org/input/download/standards/10740/CXG_061e.pdf
European Chilled Food Federation	2006 2023	Recommendations for the Production of Prepackaged Chilled Food. 2nd edition. Principles of an Environmental Monitoring Program for the Management of Lm (CFA doc)	https://www.ecff.net/wp-content/uploads/2018/10/ECFF_Recommendations_2nd_ed_18_12_06.pdf https://www.ecff.eu/wp-content/uploads/2023/10/Principles-of-an-environmental-monitoring-program-for-L-monocytogenes-v1-10-7-23.pdf
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FSS	2014	Safe Smoked Fish Tool (2022 revision)	https://safesmokedfish.foodstandards.gov.scot/assessment/3049
Profel	2020	Hygiene guidelines for the control of Lm in the production of quick-frozen vegetables	https://profel-europe.eu/_library/_files/PROFEL_Listeria_mono_guidelines_November2020.pdf
Sainsbury's Supermarkets		Code of Practice for the Monitoring and Control of Listeria spp. In Sainsbury's Brand Products. COP 19.	
USA FSIS	2014	Compliance Guideline: Controlling Lm in Post-lethality Exposed RTE Meat and Poultry Products.	https://www.fsis.usda.gov/sites/default/files/import/Controlling-Lm-RTE-Guideline.pdf

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- 160 food vans in 2024 over a large site arena, campsite, village
- Coffee mobiles serving doughnuts to high risk vans selling chicken /pulled pork etc.
- Officers worked closely with the organisers through a series of SAGs with a feedback session in September every year for lessons to take on board
- Officers onsite inspecting food vans from Thursday to Sunday

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- Organisers also hire private EHPs to carry out inspections from Wednesday to Saturday
- Met with private company to co-ordinate to avoid duplication prior to festival
- list of food vans sent to office via email
- Check ratings and dates of ratings
- Target high risk food vans only

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- Issues with food vans
- New contracting caterers for artist catering
- Insufficient handwashing facilities discovered at a few vans
- Inadequate temp controls
- Inadequate knowledge of catering staff

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- Overall reduction in inspections due to problems encountered
- Revisited problematic premises
- Vans set up on Monday
- Wheelie bins used to collect waste water

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- Overall 31 inspections carried out
- Several revisit carried out
- Worked with organisers to sort out problems
- Weather dependant
- Rained heavily over the weekend
- Mud in arena

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Food allegations timeline

- Thursday
- On Thursday 13th June 2024, initial food hygiene visits to units during breakfast/lunch within the campsite village carried out
- No issues identified other than one unit selling fried chicken.

Friday

- At 10pm on Friday 14th June 2024, notified by Download Event Control that 4 people had become ill with D&V
- The Medical Centre were trying to establish further information.
- onsite consultant to investigate this further with the food unit.

Saturday

- Site debrief at 9:30am on Saturday 15thJune 2024,. The cases had increased to 5

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Food allegations timeline

- Sat.
- With the Medical Team Manager discussed onsite infection control and cleaning, which was then fed back to the Event Organisers.
- Further information provided; 4 ate at the same unit (one on the Thursday and three on the Friday).
- The Medics believed the onset appeared to be between 7-8 hours.

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Food allegations timeline

- Sat.
- liaised with the onsite EHO to discuss their visit, which was made on Friday evening.
- They advised that they had discovered a batch of pork joints/pulled pork, covered at high level on top of an oven in the rear gazebo attached to the rear of the unit on the Friday evening. The pork was voluntarily disposed of by the onsite EHO.
- Agreed to monitor the situation

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Food allegations timeline

- The allegations had gained social media interest via the unofficial Download 2024 page on Facebook regarding food units on site.
- Tabloid and National news outlets started to report on the story and was providing unconfirmed information surrounding the number of cases that were on the unofficial download Facebook page. It gained high media attention.

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Food allegations timeline

- 10am on Saturday checked toilets and handwash provision
- Two further cases reported later in the afternoon one unrelated/ one unconfirmed food unit
- visited the onsite medical centre to escalate requests for information, spoke with the Lead Medic on duty at the time and was told that they are inconsistent in recording information by they would go back through their records not given

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Food allegations timeline

- Revisits were carried out no issues
- Later that night two food units closed due to media interest

Sunday 16th June

- Allegedly 10 cases reported to medic centre
- Dropped off faecal pots and forms with Id on forms issued by UKHSA
- No information supplied GDPR raised

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Food allegations timeline

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- Allegedly 10 cases reported to medic centre
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Food allegations timeline

Summary-

- 13 alleged food poisoning cases reported direct after the festival had ended.
- 8 alleged stated they ate at the unit in Arena
- 1 alleged stated they ate at the unit stall in the arena
- 1 alleged stated they didn't eat at the fried chicken or the other unit
- 1 alleged stated that they ate at a Thai street food

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Food allegations timeline

Summary-

- A further potential case came via Public Health Wales however, the patient had eaten sandwich that was recalled due to E.Coli.
- 1 alleged submitted a faecal pot on site but did not provide any further information.
- Out of the 13 cases, we have received 4 questionnaires back (forwarded to the UKHSA). 4 submitted samples, and we received 2 positive sample results for C. Perfringens.

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Food allegations timeline

Next Steps

- UKHSA to become more involved with Medic Centre
- Infection control policy to be written with UKHSA in line with purple guide
- To leave faecal pots with simpler questionnaire for medic centre with ilog code
- To review their standards for food vans/caterers for artist
- To review access procedures prior to build .
- To have more immediate reporting from consultant appeared to be one step ahead of us.

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Don’t believe what you read.

Organisers of the Download Festival say they had to shut down two food vendors after reports of fans becoming unwell.

Tens of thousands of fans attended the rock music gathering in Castle Donington, Leicestershire, between Wednesday and Sunday.

North West Leicestershire District Council (NWLDC) said medics began to see "a pattern" of fans falling ill, prompting event organiser Live Nation to launch an investigation.

The authority said it would continue to investigate the reports.

Will Ellis and his partner had travelled to the festival from Norfolk and said they had "pre-planned" one of the food vendors they wanted to visit, having been impressed the previous year.

The 33-year-old said: "We got our food, sat at the benches in the village and enjoyed our meals not knowing what was to come."